

Soft is the music that would charm forever;
The flower of sweetest smell is shy and lowly.—
Wordsworth.

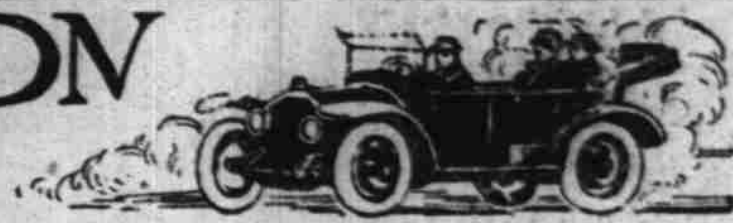
Honolulu Star-Bulletin

HONOLULU, TERRITORY OF HAWAII, SATURDAY, DECEMBER 16, 1916.

No one has deceived the whole world, nor has
the whole world ever deceived any one.—Pliny
the Younger.

THIRTY-THREE

NEWS AND PRACTICAL INFORMATION ABOUT AUTOMOBILES



ELECTRO-MAGNETISM IS DISCUSSED BY EXPERTS IN A LESSON ON THE INTRICACIES OF THE ELECTRIC SYSTEM OF AUTOMOBILES

(By Special Permission from Motor Age.)

If a compass needle be placed near a horizontal conductor in which there is a current of electricity it will be acted upon by a magnetic force which will tend to turn the needle from its approximately north and south position. The position occupied by the compass needle when it comes to rest will change with a change in the value of the current in the conductor and also with a change in the distance between the compass needle and the conductor. If the direction of the current in the conductor be reversed and adjusted to exactly the same value as before the deflection of the compass needle will be changed, and it will be deflected in the opposite direction from its normal position to that before. These experimentally proven facts prove:

First—There is a magnetic field surrounding a conductor in which there is a current of electricity.

Second—The strength of the magnetic field produced by the current depends upon the value of the current.

Third—The strength of the magnetic field produced by the current varies with the distance from the conductor.

Fourth—There is a definite relation between the direction of the magnetic field produced by the current and the direction of the current producing the magnetic field.

Magnetism produced in this manner by an electric current is called electromagnetism.

Direction of Magnetic Field

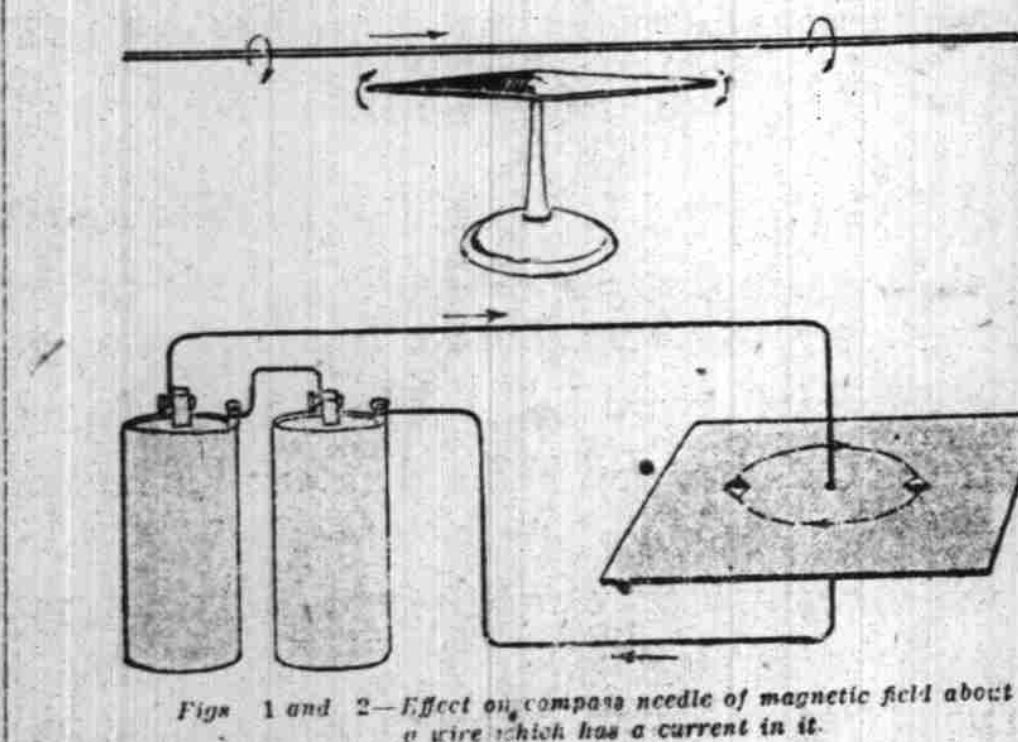
The direction of the magnetic field produced by a current of electricity may be determined in exactly the same manner as the direction of a magnetic field due to a permanent magnet—namely, by determining the direction in which the north pole of a compass needle will point when placed in the field at the point where the direction is desired. If a compass needle be placed beneath a wire, as shown in Figure 1, and a current produced in the wire from left to right, as indicated by the long, straight arrow above the wire, the compass needle will move in the direction indicated by the two curved arrows at the ends of the needle. If the compass needle be placed above the wire it will be deflected in the opposite direction. The general direction of the magnetic field on the under side of the wire is toward the surface of the paper and directly above the wire, and the direction of the magnetic field is away from the surface of the paper.

If the compass needle be pivoted on a horizontal axis parallel to the wire, instead of a vertical axis, as in Figure 1, its north pole will point around the conductor in the same direction as the hands of a clock as you look along the conductor in the direction of the current for all positions in which it is placed. The same results may be obtained by placing the conductor in a vertical position and turning the compass needle around the conductor, the compass needle being free to move in a horizontal plane instead of a vertical plane.

If the current in the conductor is down, as shown in Figure 2, the direction of the magnetic field about the conductor will be clockwise, as indicated by the small arrow heads on the dotted line.

If iron filings be sprinkled upon a sheet of paper through which a conductor passes that is carrying a current, the iron filings will arrange themselves in more or less regular, concentric lines when the paper is gently jarred, as shown in Figure 3. Determining Direction of Magnetic Field.

There are a number of simple meth-



Figs. 1 and 2—Effect on compass needle of magnetic field about a wire which has a current in it.

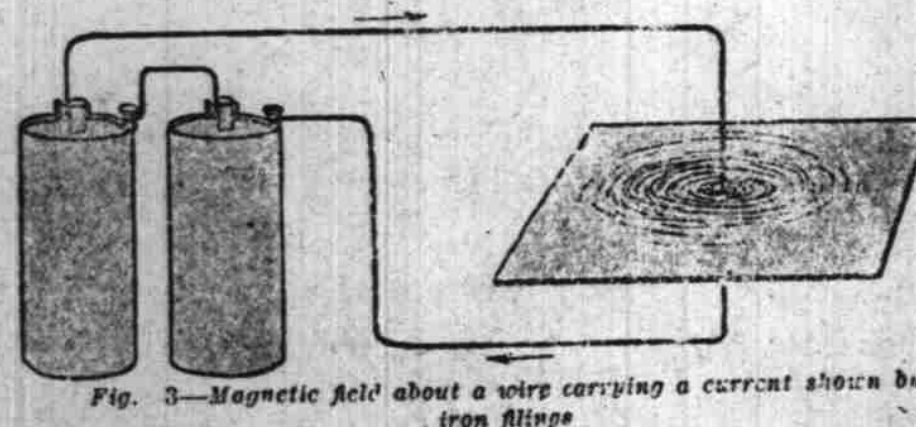


Fig. 3—Magnetic field about a wire carrying a current shown by iron filings.

ods of remembering the relation between the direction of a magnetic field and the direction of the current producing it. A very simple rule, known as the "right hand rule," is as follows: Grasp the conductor with the right hand, the thumb being placed around the conductor; then the fingers will point in the direction of the magnetic field when the thumb points to the direction of the current in the conductor.

If you look along a conductor in the direction of the current, the direction of the magnetic field surrounding the conductor, due to the current in the conductor, will be clockwise. Two methods of representing the direction of a magnetic field in relation to the direction of the current in the conductor producing the magnetic field are shown in Figure 4. A cross section of the conductor is shown in each case, and a current from the observer is indicated by a plus sign (+), while a current toward the observer is indicated by a minus sign (-). The field is indicated by the concentric dotted circles, and it is clockwise—the same direction as the hands of a clock—when the current is away from the observer and counter clockwise when the current is toward the observer.

Another rule, known as the "right hand screw rule," is as follows: Consider a right handed screw which is being screwed into or out of a block. If a current is supposed to exist through the screw in the direction in which the screw moves through the block, then the direction of the magnetic field will correspond with the direction in which the screw turns.

Solenoids. If a conductor be bent into the form shown in Figure 5 and a current sent through the conductor, the magnetic action on a compass needle placed in the position shown in the figure, due to a certain current in the conductor, will be greater than in the case of a straight conductor. This is due to the fact that the magnetic effect of both the upper and lower portions of the conductor tend to produce a de-

flection of the compass needle in the same direction. Hence, if the conductor be coiled about the needle, each additional turn will produce an additional force, tending to turn the compass needle from the normal position. The magnetic effect of any current can be greatly increased in this way.

A cross section through a single turn of wire carrying a current and the magnetic field surrounding the turn are shown in Figure 6. The current is toward the observer in the right end of the section of wire and away from the observer in the left end of the wire, which results in the direction of the magnetic field about the upper part being counter-clockwise and about the lower part clockwise. It is observed that the direction of the magnetic field between the end cross sections of the wire is downward, and all the imaginary lines of force that are supposed to constitute the magnetic field due to the current in the turn of wire through the turn are in the same direction.

The magnetic field is stronger in the center of the turn than at its outside, which is indicated by a larger number of lines of force per unit of area, as shown in the figure.

If the number of turns forming the coil be increased the strength of the magnetic field inside the coil will be increased, since the majority of the lines of force that surround each turn seem to pass around the entire winding instead of passing around the individual turns. A cross section of a coil composed of a number of turns is shown in Figure 7. Such a coil is called a solenoid.

AUTO SHIPMENT RECORDS
BROKEN IN OCTOBER
American motor car factories shipped 19,510 carloads of machines in October, setting a new record for the month. The previous record was 17,848 carloads, established in October, 1915.
Berlin has registered 107,909 alien residents.

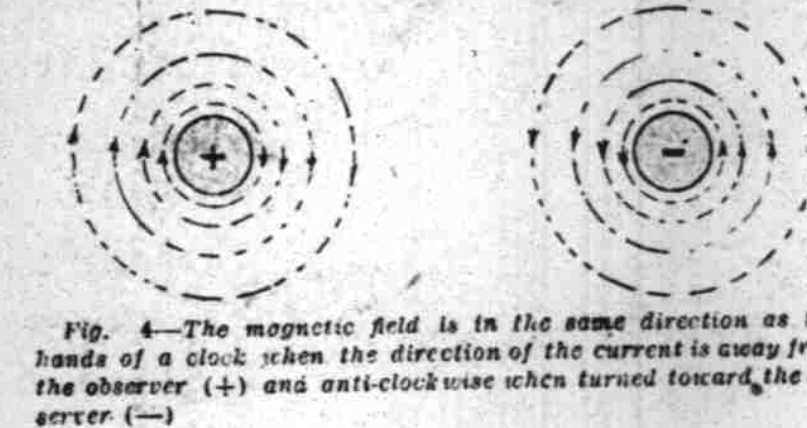


Fig. 4—The magnetic field is in the same direction as the hands of a clock when the direction of the current is away from the observer (+) and anti-clockwise when turned toward the observer (-).

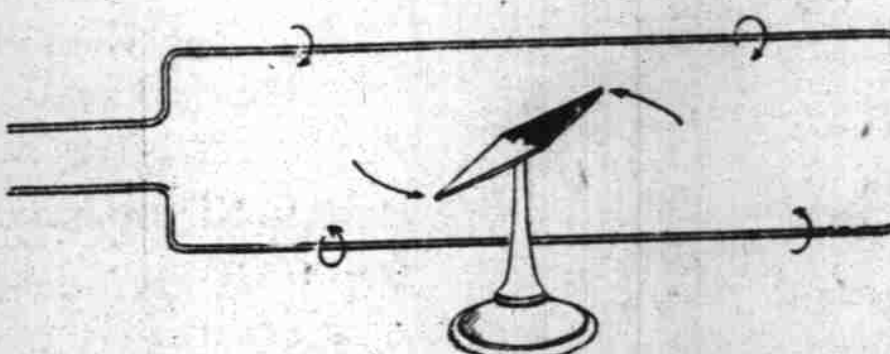


Fig. 5—Effect on a compass needle of current through a loop of wire.

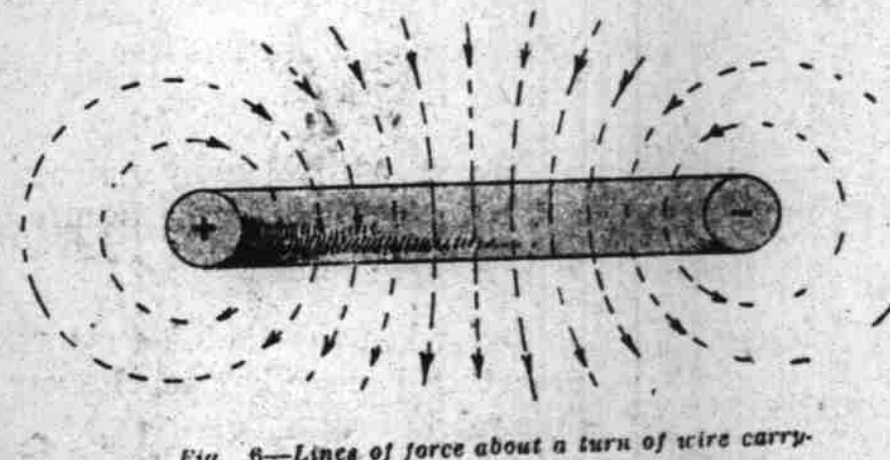


Fig. 6—Lines of force about a turn of wire carrying a current.

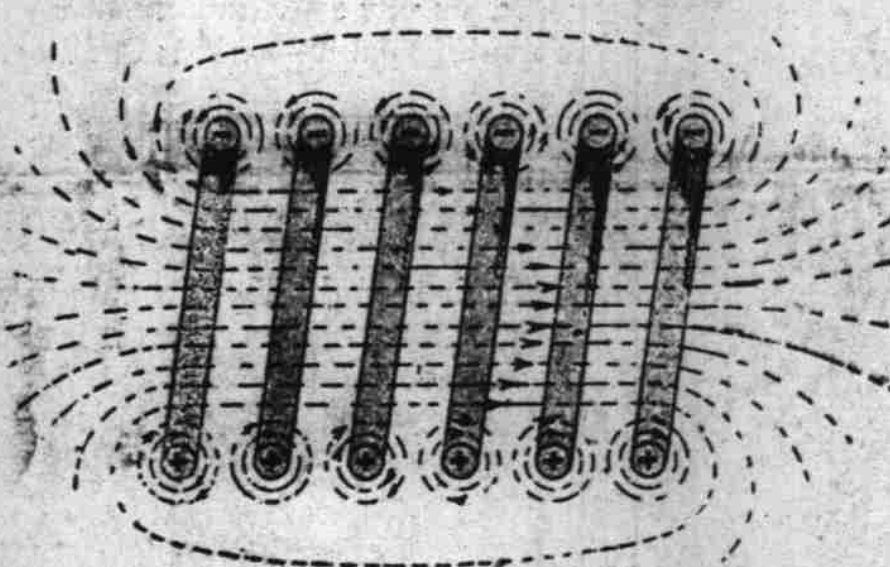


Fig. 7—Cross-section of a solenoid showing lines of force.

'SERVICE' IN MOTOR CAR WORLD MOST POTENT WORD IN BUSINESS

So Says Cole Authority, Speaking of Automobile Situation; Right Arm of Sales

At the factory of the Cole Motor Car Company of Indianapolis there convened last week one of the most remarkable service conventions in the history of the industry. It was the opening gun fired by Fred A. Cornell, late of the Perfection Spring Service Company, who has just taken over the service management of the Cole organization, and it brought together Cole sales managers, distributors and service men from all points in the United States east of the Rocky Mountains. About 100 were in attendance.

The keynote address of the convention was delivered at the opening session by A. F. Knobloch, general manager of the Cole Company. At the following session, which lasted until Saturday, there was a general discussion which had to do with all features of the Cole product, ranging from "The Power Plant" and "Chassis" to "Ignition, Lighting, Starting." Each service man offered suggestions or criticism—the results of his own experiences with the car—and these were studied most carefully.

Probably the most interesting talk of the convention was the opening speech by Mr. Knobloch. "Only the man or company who serves the public well," he declared, with emphasis, "realizes and is entitled to large and permanent success. I have applied that law to my knowledge of life and found it generally true—it is 95 per cent true. Therefore, as one of the responsible heads of the Cole Company I am very anxious that we shall serve the public well so that we may have a large and permanent success."

"Service in the motor car world is fast becoming the most potent word in the industry. There is nothing more important. It is the right arm of the sales department."

commercially speaking, that the Cole Company has. Therefore, it is the duty of every man in the Cole organization to treat that consumer as a friend. He is the friend of the Cole Company because it is the consumer who pays all the bills, pays all the profits and pays all the salaries. The consumer is the one who supports all the men in this convention. He is the best friend of the institution and must be treated as such.

"There is one man closer to the consumer than any other man in the line of organization and he is the service man. I, personally, am in touch with but few Cole consumers. The heads of the various departments in factory are in close touch with but comparatively few of them, but you men are in close touch with all of them. Consequently it is very important that you men, as our only mouthpiece to the friend, the consumer, should thoroughly cooperate with the policies of the Cole plant and that you have the positive and unstinted backing of the plant itself. Only then can our best work be done and we are here to establish that relation intelligently."

"Service is demanded by every motor car owner, no matter what make of car he uses. Good service is not necessarily free service, neither does it mean express charges and telegraph tolls. It does mean, however, reasonable charges; a square deal and as quick service as it is reasonably possible to deliver. You, as service men in the Cole business, must assume the responsibility of delivering that kind of service. You are here to learn more about service under one of the best known service heads in the manufacturing world."

"I am not talking just to use up time. I'm announcing a definite policy of the Cole Company for which we expect to hold you responsible, and if you do not want to assume that responsibility now is the time for you to get out of the organization. Remember, the consumer is the Cole's best friend and he must absolutely be treated as such."

GOOD THAT MOTOR CAR DOES NOT ALWAYS APPRECIATED BY OWNERS

It saves time: In the aggregate, tens of millions of hours daily are now devoted to useful occupations which formerly were wasted because of slow and inefficient methods of transportation.

It improves health: The extent to which motor cars improve the health of those who use them can not be estimated, so vast and far reaching are the benefits thus accomplished.

It increases friendships: Owners and users of motor cars find it easy to extend and improve their circle of friends, thus enlarging and improving their opportunities to enjoy the numberless benefits incidental thereto.

It encourages thrift: Thousands of people are "saving up" to buy an automobile, and the reason they are saving is because the automobile is such an intensely desirable thing that people quit spending their money foolishly in order to get one. The habit of saving thus inspired often continues long after the motor car is purchased.

It is highly educational: The motor car has made it possible for thousands of men and women to acquire an elemental knowledge of machinery, than which there is no more interesting or useful study. It improves minds through enlarged opportunities for travel. It gives to those who use it a constantly extended intellectual horizon.

It strengthens family ties: Untold thousands of families have been cemented into a closer bond through the possession of a motor car. It keeps children and parents together and increases their understanding of each other. When there is a motor car in the family the parents are never "strangers" to their own children. On the contrary, they are friends and companions as well as blood relatives.

It increases the world's wealth: Sometimes you hear an expression of surprise that there should be so much money to spend for motor cars. As a matter of fact, the motor car creates a great deal more wealth than is represented in its purchase price. The owner of a car soon finds himself a more efficient being than he was before, with a largely increased earning power. Improved mentally and physically, the motor car owner finds that he can carry on his work or his business in a way that yields him a greater return. Thus the motor car pays for itself and piles up a huge balance for distribution among all classes of men. There is nothing so economically logical as the motor car.

It adds to human efficiency: There is hardly a utility that is useful in as many or in such essential ways as the motor car. There are numerous utilities which benefit mankind in one way, but there are few to compare with the motor car in the great diversity of its benefits. The telephone saves time, but, unlike the motor car,

it does not improve the health of its user while it is saving his time. There are hundreds of useful machines and appliances in the world, but it is doubtful if any one of them has such a widespread influence for good as the motor car.

It creates whole new industries: Aside from the millions of dollars directly involved in the manufacture of motor cars, the development of this industry has made it possible for other industries to establish themselves. Think of the tens of thousands who are making a living as repairmen, and through employment in accessory and associated industries. Men are employed today at good wages in tanneries, in mines and factories, on farms and plantations, in oil fields and rubber groves, and in stores and offices all over the world, who would not be so employed were it not for the motor car and the industries it has created.

It has brought better roads: Few things contribute as much to the national well-being as good roads; and the motor car has been and is now the strongest influence for road improvement that exists. When roads are improved property values double, treble and quadruple. Markets are made accessible which previously were beyond reach. Good roads make it possible for the poor of the cities to have better food and more of it, at less cost, and for the farmer to sell the products of his farm and garden at greater profit. And as the motor car improves roads, so it improves the lives of untold thousands in and out of the cities, and makes existence for them pleasanter and more profitable.

It benefits both users and non-users: For every man or woman who owns a motor car, a score of persons are helped, either directly or indirectly. First there are the countless thousands who directly benefit from the motor car and its associated industries. Then there are the friends and acquaintances of motor car owners, who get the benefits of health and of time economies through the generosity of those who own cars. Then there are thousands of tradesmen who do more business because of the vast amount of motor travel. In the mountains and along the shores of the lakes and seas are thousands of hotel-keepers who would have only a fraction of their present business were it not for motor cars to tempt their owners to travel. Newspapers and magazines have been enriched by millions of dollars through the advertising revenue derived from the sale of motor cars. There is not a printing house in the land that has not made money because of the presence of the motor car. In short, there is not a man or woman anywhere whose life has not been touched—and improved—by the motor car.—Buick Bulletin.

PLATEWAYS SUGGESTED AS NEW BASE FOR INCREASED TRAFFIC

Maxwell Expert Believes That Plateways Would Save Expense in Road Repair

SAN FRANCISCO, Dec. 15.—Looking to the future when California's state highway system will have to bear heavier and more continuous traffic, T. J. Toner, Pacific coast supervisor for the Maxwell Motor Sales Corporation, distributor of the Maxwell car throughout the West, has endorsed the suggestion of Francis M. Hugo, secretary of the state of New York, for the installation of some kind of plate for motor trackways on the state highway.

Toner's opinion is based upon many months of observation of the effect of the increased traffic over the state highway leading out of San Francisco since the system was opened for vehicular transportation.

"Many persons are familiar with the fact that plateways are often used over bridges and certain other places where heavy material is hauled," says Toner, "but the public is not so well aware of the fact that on an 18-foot road—the average width of the main roads—only a small part of this width is actually used by the vehicles which pass over it. Take for instance the state highway south of this city; tire markings of both horse drawn and motor driven vehicles stand out in marked contrast to the balance of the highway, proving conclusively upon the slightest observation that only a small portion of the highway is actually used."

"Yet when the road has to be repaired or renewed the whole width has to be dealt with, as mere patching in most cases cannot be regarded as the most practical method of maintenance. Consequently one concludes that prepared tracks would save an immense amount of repair and wear. These tracks could be made of special material, continuously smooth in character and sufficiently wide. They would bear nearly all of the traffic

and would lengthen the life of the highway tenfold.

"When one considers the rapid increase every year in the number of automobiles alone that use our state highway, one can readily appreciate what this means in wear. The Maxwell car alone furnishes a striking example of the rapid growth in the number of new owners. The factory allotment for the West for the year 1916-17 is nearly 12,000 cars; of this amount 9,900 alone will be sold in California."

ARCHBISHOP HAS KISSEL KAR FOR USE IN LABORS

The Most Reverend John Bonzano, D. D., archbishop of Milne and apostolic delegate to the United States from the Pope of Rome, is now the owner of a Kissel all-year car.

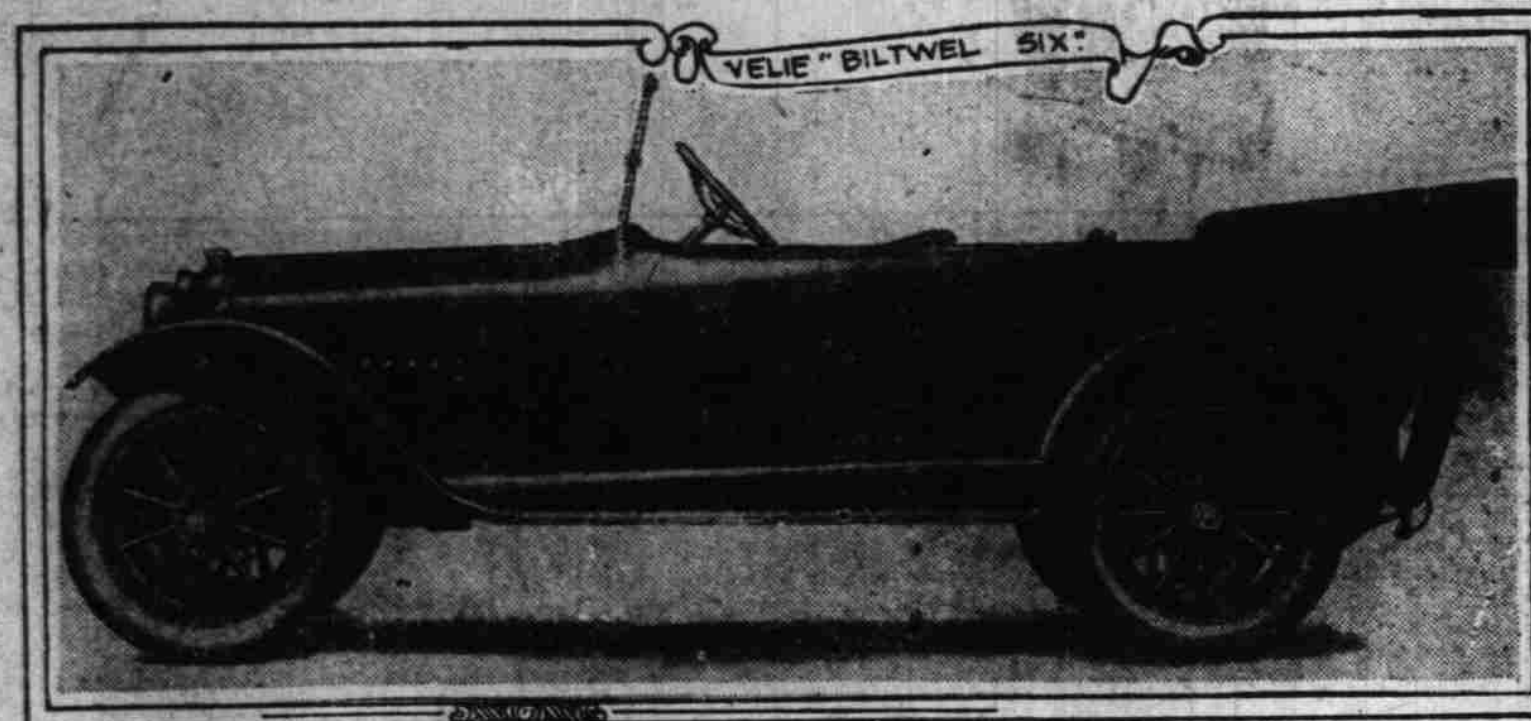
William J. Connor, owner of the Buffalo Courier and one of the most influential citizens of western New York, presented the car to the archbishop on the strength of the excellent satisfaction one of the same kind had given the bishop of Buffalo, who has been driving an all-year car for some time.

The presentation to Bishop Bonzano was made at Washington by a delegation of priests for whom the Rev. Thomas J. Walsh acted as spokesman.

Due to higher prices of pig iron, pipe makers advanced prices \$5 a ton, bringing the rate to \$35 to \$39 a ton round, according to size.

The Conebo, Shippo, Cocoma and Yahna tribes of Amazon Indians are still wearing clothes of grass.

NEW VELIE MODELS ARE ANNOUNCED



With the announcement of the 1917 Velie "Biltwell" line the following specifications are revealed: In size the model "29" remains the same, with a wheel base of 115 inches, standard tread exclusively, and 32x4-inch straight side tires all around, non-skid on wheels. Endless demountable rims, with detachable side rings, offer a double method of tire change.

A special Velie-Continental motor is used—3 1/4 x 4 1/2 in dimensions, developing in excess of 40 horsepower. A removable cylinder head allows easy inspection of combustion chambers, valves and working parts, while the pistons may be removed entirely through the lower half of the crank case if desired.

In addition to the touring car body, the model "28" chassis is fitted with roadster, sedan, coupe and other types of special bodies.

To complete the Velie "Biltwell" line and provide a model for unusual requirements a larger and more powerful seven-passenger car is offered in the model "27," the direct successor of the model "15." This new model has 124-inch wheelbase, 35x4 1/2-inch tires, Velie-Continental motor 3 1/2 x 5 1/2 inches, 45-horsepower; Timken axles and bearing throughout, Remy push button starter, disc clutch and four-speed transmission.